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Alarming rates of attrition among tuberculosis patients in public-private facilities in Lahore, Pakistan

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Setting: All public-private mix (PPM) facilities caring for tuberculosis (TB) patients in Lahore city, Pakistan, under four models: PPM1 (general practitioners), PPM2 (non-governmental organisations), PPM3 (private hospitals) and PPM4 (others).

Objective: To assess the pre-treatment loss to follow-up (LTFU), defined as patients documented in the laboratory registers but not in the treatment registers of any PPM facility, among sputum smear-positive TB patients diagnosed during January–March 2015, and unfavourable treatment outcomes among patients registered for treatment and associated factors.

Design: This was a retrospective cohort study reviewing existing programme records. Poisson regression was used to identify factors associated with outcomes.

Results: Of 2473 patients diagnosed, 1590 (64%) were lost to follow-up before treatment. This was higher among males (68%) and the elderly (79%), and lower among 'high positives' (smear grading 2+ or 3+, 53%) and in the PPM1 model (34%). Of 883 patients started on treatment, 165 (19%) had unfavourable outcomes: 8% LTFU, 5% treatment failure, 3% died and 3% not evaluated. Previously treated patients (34%) and children (44%) had the worst outcomes.

Conclusion: Pre-treatment LTFU was alarmingly high and requires urgent attention, including the development and institution of mechanisms for patient tracking using information and mobile phone technology, and making TB notification mandatory in the private sector.

Tuberculosis (TB) remains a major public health problem in Pakistan. According to the World Health Organization's (WHO's) 2016 global TB report, the estimated incidence and mortality rates for 2015 were respectively 270 and 23 per 100000 population.[1] Pakistan ranks fifth among the 30 TB high-burden countries globally, and accounts for approximately 60% of the TB burden of the WHO's Eastern Mediterranean Region.[1] Of the 510000 estimated incident cases in Pakistan in 2015, 323856 were notified to the National TB Programme (NTP), an estimated case detection rate of 63%.[1] Furthermore, a capture-recapture study showed an underestimation of TB incidence in Pakistan compared to official estimates, with an actual case detection rate of only 32%.[2] All this implies that we are currently 'missing' many patients with TB.

This is a global problem; the latest WHO report states that worldwide there are 4.3 million TB cases who are 'missing', i.e., undiagnosed, untreated or treated in the private sector but not reported. Pakistan ranks third in the list of countries contributing 75% of the missing cases.

Engaging the private health sector in TB control is crucial if we are to reach these missing patients and end the TB epidemic, as envisaged in the WHO's End TB strategy and Pakistan's national strategic plan for TB.[3,4] To address this, several public-private mix (PPM) initiatives for TB care have been implemented in Pakistan since 2006. There are currently four PPM models being supported by the NTP, which furnishes training to private providers, anti-tuberculosis drugs, laboratory equipment and supplies, and enables the recording, reporting and monitoring of TB services (Table 1).

There is some evidence to indicate that PPM initiatives have been effective in improving TB case detection and treatment outcomes.[5–7] While these results are encouraging, there is scope for further improvement. The studies that assessed treatment outcomes were conducted among registered patients receiving treatment, and did not consider the loss to follow-up (LTFU) that may have occurred before the initiation of treatment.[7] The WHO now recommends that every diagnosed patient should be registered and accounted for and that those patients who were not initiated on treatment be reported as pre-treatment LTFU.[8]

Based on anecdotal evidence obtained during routine field visits, we hypothesised that there is a gap between the number of patients diagnosed and the number started on treatment in the four models of PPM: general practitioners (GPs; PPM1), non-governmental organisations (PPM2), private hospitals (PPM3) and others (PPM4). Current reporting from PPM sites does not capture this gap. While three studies have been published on this issue from Pakistan's public health sector, no studies have been reported from the private health sector.[9–11]

We therefore aimed to quantify pre-treatment LTFU and treatment outcomes among smear-positive pulmonary TB patients registered in PPM facilities in Lahore, Pakistan, and to assess associated demographic and clinical factors.

METHODS

Study design

This was a retrospective cohort study involving a review of existing programme records.

Setting

General setting

Pakistan is home to 189 million people, making it the world's sixth most populous country. Approximately

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TABLE 1 Models of PPM care under the NTP in Pakistan

Model	Characteristics
PPM1	GPs operating solo GP clinics in 78 districts are involved in provision of TB care services with a formal agreement with the district-level health authorities in the public sector through specific selection criteria. These GPs are provided with training for TB case management through NTP-approved guidelines, free anti-tuberculosis drugs and monitoring support by the district TB programme and implementing partners. GPs refer presumptive TB cases attending their clinics for diagnosis by sputum smear examination to a nearby designated laboratory on a standard laboratory request form. The diagnosed patients are referred back to the GP for registration on prescribed recording tools and for treatment and follow-up until declaration of outcome. Nationally, about 2200 GP clinics were engaged and contributed a total of 6906 TB sputum-positive patients diagnosed and treated during 2015. The district field supervisor, supported by implementing partners, maintains the TB treatment register, linking the PPM laboratories and GPs for monitoring and supervision services
PPM2	Numerous NGOs—the Pakistan Anti-Tuberculosis Association, Aga Khan Foundation, Marie Adelaide Leprosy Centre, Punjab Rural Support Programme, National Rural Support Programme and Provincial Public Healthcare Initiative—run their own health facilities and provide TB care and support alongside other health services. There are approximately 70–80 NGO BMUs operated by NGOs in the country and which provided TB diagnostic and treatment services to 6467 patients with TB in 2015
PPM3	There are approximately 30–40 not-for-profit hospitals in the private sector nationally, varying from small facilities to large tertiary-level hospitals. Equipped with trained staff, they contributed a total of 3166 TB sputum-positive patients diagnosed and treated during 2015
PPM4	Approximately 50 health care institutions established by organisations/corporations and autonomous bodies in the public sector (e.g., railways, military, social security and many others) provide TB care facilities essentially for their employees. The staff, trained in TB case management, provided diagnostic and treatment services under one roof for 1516 patients with TB during 2015

PPM = public-private mix; NTP = national tuberculosis control programme; GP = general practitioner; TB = tuberculosis; NGO = non-governmental organisation; BMU = basic management unit.

39% of the population is aged <15 years,[12] and approximately 60% lives in rural areas. Pakistan has 148 districts, distributed across five provinces and three regions. Punjab, of which Lahore is the provincial capital, is the largest province population-wise, accounting for 56% of the country's population.[12]

Pakistan's health system is comprised of a public and a private sector. While most preventive care is delivered by the public health sector, three quarters of curative care is delivered by the private sector. The private health sector includes tertiary-level private sector hospitals, teaching hospitals, health facilities run by various faith-based organisations, individual GP clinics and informal health care providers.

The NTP was revived in 2001, subsequent to the declaration of TB as a national emergency by the Government of Pakistan. Working under the Ministry of Health, the NTP delivers WHO-recommended national policy guidelines for the management of TB cases, maintains the TB surveillance system, receives and manages grants from external donors and operates international procurement and supply chain management of all commodities, including anti-tuberculosis drugs and newer diagnostics. TB care services are decentralised and integrated within the country's primary health care system. The provincial and district TB control programmes are responsible for planning, implementing and monitoring TB control activities in their respective areas. Quality-assured diagnosis and treatment for TB are provided free of charge to patients through the TB care facilities in all public and selected PPM sector facilities operating under a formal memorandum of understanding with the NTP. The four types of PPM models are described in Table 1.

Study population and study period

All smear-positive pulmonary TB patients diagnosed between 1 January and 31 March 2015 in the TB care facilities operating under any of the PPM models in Lahore city were included in the study. Lahore was selected as the study site due to its strong private sector, accounting for approximately 15% of all smear-positive TB cases notified by the private sector countrywide. There were 263 TB care facilities under PPM1 (GP clinics), 2 under PPM2 (NGO-run hospitals), 5 under PPM3 (private hospitals) and 5 under PPM4 (other public sector facilities).

Data collection, variables and sources

The data were extracted from the TB laboratory registers and TB treatment registers maintained in the PPM facilities. Of a total of 39 laboratories, respectively 25, 3, 7 and 4 were under PPM1, PPM2, PPM3 and PPM4. Data collection was undertaken during April–June 2016. The variables included type of PPM model, laboratory serial number, patient's name, age, sex, date of diagnosis and treatment start, smear grade, type of TB and treatment outcome (for definitions of treatment outcomes, see Table 2).

The data were collected using a structured proforma. First, basic demographic data were extracted from the laboratory register. Each patient in the laboratory register was traced in the treatment registers of all the PPM facilities in Lahore using the laboratory name and serial number and the name, age and sex of the patient. Two electronic databases were created—one to capture patient details from the laboratory registers and another to capture patient details from treatment registers of all the PPM facilities in Lahore. The two databases were then electronically matched for

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Conflicts of interest: none declared.

TABLE 2 TB treatment outcomes used in the NTP, Pakistan, 2015[8]

Term	Definition
Cured	A pulmonary TB patient with sputum smear-positive TB at the beginning of treatment who was smear- or culture-negative in the last month of treatment and on at least one previous occasion
Treatment completed	A TB patient who completed treatment without evidence of failure but with no record to show that sputum smear or culture results in the last month of treatment and on at least 1 previous occasion were negative, either because tests were not performed or because results are unavailable
Treatment failure	A TB patient whose sputum smear or culture is positive at month 5 or later during treatment
Died	A TB patient who dies for any reason before starting or during the course of treatment
Loss to follow-up	A TB patient who did not start treatment or whose treatment was interrupted for ⩾2 consecutive months
Not evaluated	A TB patient for whom no treatment outcome is assigned. This includes cases transferred out to another treatment unit as well as cases for whom the treatment outcome is unknown to the reporting unit or not recorded in the registers

TB = tuberculosis; NTP = national TB control programme.

common records using the variables mentioned above. This helped to trace each patient electronically and not miss those patients who might be diagnosed in one PPM facility but started on treatment in another PPM facility in Lahore. Patients who were documented in the laboratory registers but not found in the treatment register of any PPM site in Lahore were considered as 'pre-treatment LTFU'. For patients started on treatment, we reviewed the treatment register for final treatment outcomes as of 31 March 2016 (censor date).

Data entry and analysis

The data were double-entered, validated and analysed using EpiData software v. 3.1 for entry and v. 2.2.2.183 for analysis (EpiData Association, Odense, Denmark). Stata v. 12.1 (Stata Corp, College Station, TX, USA) was used for multivariable analysis. Data were summarised using frequencies and proportions, mean with standard deviation (SD) or median with interquartile range (IQR), as applicable. Treatment outcomes were classified into favourable (cured, treatment completed) and unfavourable (failure, LTFU, died, not evaluated). Associations between demographic and clinical factors and outcomes (pre-treatment LTFU and unfavourable treatment outcomes separately) were assessed using the χ^2 test or Fisher's exact test, as applicable. A P value of ⩽0.05 was considered statistically significant. Relative risks (RR) with 95% confidence intervals (CI) were calculated. A multivariable Poisson regression analysis was performed (all variables were included) to adjust for confounding and calculate the adjusted RR and 95%CI.

Ethics approval

Ethics approval was obtained from the Ethics Committee of the NTP (Lahore, Pakistan) and the Ethics Advisory Group of the International Union Against Tuberculosis and Lung Disease (Paris, France). As the study involved a review of records with no direct interaction with the patients, the need for individual informed consent was waived by the ethics committees.

RESULTS

From January to March 2015, 2473 smear-positive TB patients were diagnosed. Their demographic characteristics are shown in Table 3. Of these patients, 1307 (53%) were males and the median age was 32 years (IQR 22–47). Approximately 75% of the patients were diagnosed in facilities belonging to PPM3 (private hospitals), followed by 17% in PPM1 (GPs).

Of the 2473 patients diagnosed, 1590 (64%) were lost to follow-up before treatment initiation (Figure). Pre-treatment LTFU was associated with sex, age, type of PPM model and smear grade (Table 4). Males had a 10% higher risk of pre-treatment LTFU than females, and pre-treatment LTFU increased with age. Among the PPM models, the lowest rate of pre-treatment LTFU was observed in PPM1 (GPs); compared to PPM1, the risk of pre-treatment LTFU was approximately twice as high in the other models. Pre-treatment LTFU was higher among patients with a low positive smear grade (scanty or 1+) compared to high positives (2+ or 3+).

Treatment outcomes are shown in Table 5. Of 883 patients started on treatment, 718 (81%) were successfully treated, while 165 (19%) had unfavourable outcomes. Approximately half of those with unfavourable outcomes either died or were lost to follow-up. Children aged <15 years and previously treated patients had a higher risk of unfavourable outcomes (Table 6).

DISCUSSION

This study confirms our hypothesis that there is a huge gap between the number of patients diagnosed and the number treated in PPM facilities in Lahore, Pakistan. We found that approximately two thirds of TB patients were lost to follow-up before starting treatment. This is alarmingly high and requires urgent attention. Among those started on treatment, the treatment success

TABLE 3 Clinical and demographic profile of smear-positive TB patients diagnosed in PPM facilities in Lahore city, Pakistan, January–March 2015

Variable	*n* (%)*
Total	2473 (100)
Age group (years)	
<15	63 (3)
15–44	1645 (66)
45–64	566 (23)
⩾65	197 (8)
Sex	
Male	1307 (53)
Female	1166 (47)
PPM type	
PPM1 (GP)	410 (17)
PPM2 (NGO)	73 (3)
PPM3 (PVT)	1884 (76)
PPM4 (Other†)	106 (4)
Smear grade	
Scanty	281 (11)
1+	1029 (42)
2+	736 (30)
3+	427 (17)

*Column percentage for each section.
†Other non-NTP public sector institutions.
TB = tuberculosis; PPM = public-private mix; GP = general practitioner; NGO = non-governmental organisations; PVT = private hospitals; NTP = national TB programme.

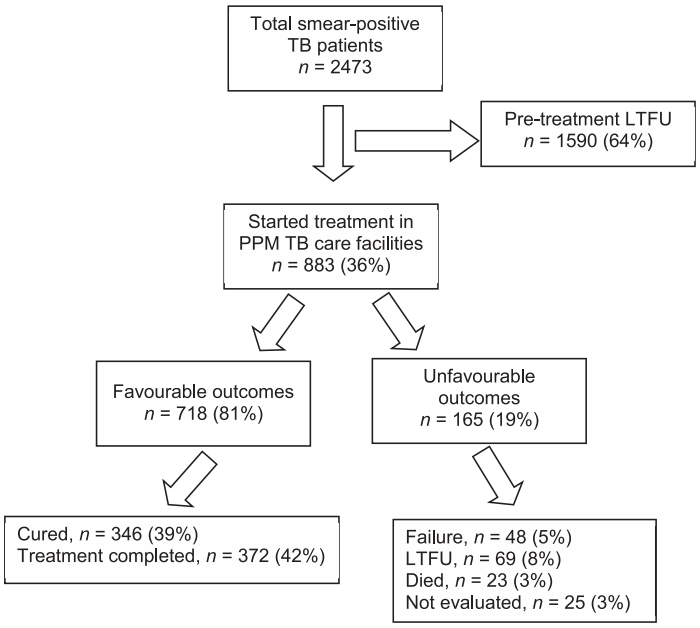

FIGURE Flowchart showing pre-treatment LTFU and treatment outcomes of smear-positive TB patients diagnosed in PPM facilities, Lahore city, Pakistan, January–March 2015. TB = tuberculosis; LTFU = loss to follow-up; PPM = public-private mix.

rate was 81%, lower than the target recommended by the WHO (85%) and the results from the public sector (~90%). The key reason for unfavourable outcomes was LTFU and death, which together accounted for over half of the missing patients.

This is the first study from Pakistan on pre-treatment LTFU among patients diagnosed in the private health sector. The three previous studies from Pakistan were all from public sector facilities, where pre-treatment LTFU ranged from 6% to 28%, with higher rates in tertiary care hospitals compared to peripheral health centres.[9–11] The lower rates of pre-treatment LTFU in the public sector might be due to better documentation and patient follow-up. In similar studies in other countries, pre-treatment LTFU varied between 5% and 38%, including India with 5–14%, Viet Nam 8%, Malawi 15%, South Africa 16%, Fiji 34% and Ghana 38%.[13–19]

This study had several strengths. First, as we had a large sample size, our estimates are likely to be precise. Second, as we used routine data for the study, the findings are likely to reflect the programme realities. Third, we rigorously and electronically matched each diagnosed patient in all the TB treatment registers of the PPM facilities of Lahore city so as not to miss any cases. Fourth, we followed the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) guidelines for reporting this study.[20]

There were a few limitations. First, it is likely that some of the patients diagnosed in the PPM facilities might be receiving treatment in public sector hospitals of Lahore or other districts, or other private health facilities currently not involved in PPM. Patient pathway studies indicate that it is common for patients to go 'doctor shopping' before coming to terms with their diagnosis

TABLE 4 Factors associated with pre-treatment LTFU among smear-positive pulmonary TB patients diagnosed under PPM models in Lahore city, Pakistan, January–March 2015

Variable	Total *N*	Pre-treatment LTFU *n* (%)*	RR (95%CI)	aRR (95%CI)
Total, *N*	2473	1590 (64)		
Age, years†				
<15	63	27 (45)	0.7‡ (0.5–0.9)‡	0.7‡ (0.6–1.0)‡
15–44	1645	1006 (61)	Ref	Ref
45–64	566	399 (71)	1.1† (1.0–1.2)‡	1.1‡ (1.1–1.2)‡
⩾65	197	156 (79)	1.3† (1.2–1.4)‡	1.3‡ (1.2–1.4)‡
Sex				
Male	1307	885 (68)	1.1† (1.1–1.2)‡	1.1‡ (1.0–1.2)†
Female	1166	705 (61)	Ref	Ref
PPM type				
PPM1 (GP)	410	141 (34)	Ref	Ref
PPM2 (NGO)	73	55 (75)	2.1‡ (1.8–2.6)‡	2.4‡ (1.9–2.9)‡
PPM3 (PVT)	1884	1326 (70)	2.1‡ (1.8–2.3)‡	1.9‡ (1.7–2.2)‡
PPM4 (Other)§	106	68 (64)	1.9‡ (1.5–2.3)‡	2.0‡ (1.7–2.5)‡
Smear grade				
Scanty	281	205 (73)	Ref	Ref
1+	1029	767 (75)	1.0 (0.9–1.1)	1.1 (0.9–1.1)
2+	736	374 (51)	0.7‡ (0.6–0.8)‡	0.7‡ (0.7–0.8)‡
3+	427	244 (57)	0.8‡ (0.7–0.9)‡	0.8‡ (0.7–0.9)‡

*Row percentages.
†Missing for 2 patients.
‡Statistically significant ($P < 0.05$).
§Other non-NTP public sector institutions.
LTFU = loss to follow-up; TB = tuberculosis; PPM = public-private mix; RR = relative risk; CI = confidence interval; aRR = adjusted RR; Ref = reference group; GP = general practitioner; NGO = non-governmental organisation; PVT = private hospital; NTP = national TB control programme.

TABLE 5 Treatment outcomes of smear-positive pulmonary TB patients registered and treated under PPM models, Lahore city, Pakistan, January–March 2015

Treatment outcome	All models *n* (%)*	PPM1 (GP) *n* (%)*	PPM2 (NGO) *n* (%)*	PPM3 (PVT) *n* (%)*	PPM4 (Other†) *n* (%)*
Total	883 (100)	269 (100)	18 (100)	558 (100)	38 (100)
Favourable outcomes					
Cured	346 (39)	71 (26)	4 (22)	242 (43)	29 (76)
Treatment completed	372 (42)	141 (52)	7 (39)	215 (39)	9 (24)
Unfavourable outcomes					
Failure	48 (5)	25 (9)	0	23 (4)	0
Died	23 (3)	0	0	23 (4)	0
LTFU	69 (8)	20 (7)	7 (39)	42 (8)	0
Not evaluated	26 (3)	12 (5)	0	13 (2)	0

*Percentages are from the total number of patients per treatment model, arranged as column percentages.
†Other non-NTP public sector institutions.
TB = tuberculosis; PPM = public-private mix; GP = general practitioner; NGO = non-governmental organisation; PVT = private hospital; LTFU = loss to follow-up; NTP = national TB control programme.

and starting treatment.[21,22] We may thus have overestimated the extent of pre-treatment LTFU. There is no electronic database of patient records in the country and it was not feasible to manually review the treatment registers maintained in the hundreds of public sector facilities. Second, the results reflect the situation in only one city, and caution should be exercised before generalising the findings to the whole country.

We found that pre-treatment LTFU was lowest among patients receiving care from GPs (PPM1). This might be due to the strong personal rapport of GPs with their patients, fewer TB patients per GP (~1–2 per GP per quarter) and better documentation and follow-up. Pre-treatment LTFU was higher among patients with scanty or 1+ smear grade. This might be due to a perception of less severe disease and apparent well-being on the part of patients or providers.

Our study was limited to a quantitative assessment of LTFU, and we could not assess the reasons from the perspectives of the patients or providers. The literature indicates several possible reasons for LTFU, including deficiencies in documentation, lack of awareness among patients about their TB diagnosis, a lack of risk

TABLE 6 Factors associated with unfavourable treatment outcomes among smear-positive pulmonary TB patients registered and treated under PPM models, Lahore city, Pakistan, January–March 2015

Variable	Total *N*	Unfavourable outcome *n* (%)*	RR (95%CI)	aRR (95%CI)
Total	883	165 (19)		
Age, years				
<15	36	16 (44)	2.6† (1.7–3.9)†	2.9† (1.9–4.4)†
15–44	639	109 (17)	Ref	Ref
45–64	167	34 (20)	1.2 (0.9–1.7)	1.3 (0.9–1.8)
⩾65	41	6 (15)	0.9 (0.4–1.8)	1.0 (0.5–2.1)
Sex				
Male	422	76 (18)	0.9 (0.7–1.2)	1.0 (0.7–1.3)
Female	461	89 (19)	Ref	Ref
PPM type				
PPM1 (GP)	269	57 (21)	Ref	Ref
PPM2 (NGO)	18	7 (39)	1.8† (1.0–3.4)†	1.2 (0.6–2.5)
PPM3 (PVT)	558	101 (18)	0.9 (0.6–1.1)	0.8 (0.6–1.0)
PPM4 (Other‡)	38	0	NA	NA
Smear grade				
Scanty	76	13 (17)	Ref	Ref
1+	262	51 (20)	1.1 (0.7–2.0)	1.2 (0.7–2.0)
2+	362	64 (18)	1 (0.6–1.8)	1.1 (0.6–1.9)
3+	183	37 (20)	1.2 (0.7–2.1)	1.1 (0.6–2.0)
Type of patient				
New	764	125 (16)	Ref	Ref
Previously treated	119	40 (34)	2.1† (1.5–2.8)†	2.2† (1.6–3.1)†

*Column percentages.
†Statistically significant ($P < 0.05$).
‡Other non-NTP public sector institutions.
TB = tuberculosis; PPM = public-private mix; RR = relative risk; CI = confidence interval; aRR = adjusted RR; Ref = reference group; GP = general practitioner; NGO = non-governmental organisation; PVT = private hospital; NTP = national TB control programme.

perception, death in severely ill patients, long distances from the health facility and dissatisfaction with the health services.[13–19] This area requires further systematic enquiry using qualitative research methods.

As expected, treatment outcomes were poorer among previously treated patients. It was not clear, however, why children had poorer outcomes. As we relied on existing data, we could not study certain key variables that are known to affect treatment outcomes, such as human immunodeficiency virus status, diabetes status, tobacco use and drug susceptibility patterns. These need to be included in future research.

The study has important programme implications. First, staff working in PPM facilities, such as laboratory technicians and district field supervisors, need to coordinate and follow up each diagnosed patient to ensure the timely initiation and completion of treatment. Patient telephone numbers, wherever available, might be useful in tracing them. Second, documentation of patient details needs to be improved, including complete addresses and telephone numbers in the laboratory registers. Third, patients need to be educated and counselled about the necessity of starting treatment to obtain better outcomes and to prevent disease transmission to family members. This may require additional dedicated staff in certain high-volume facilities. Fourth, the NTP needs to introduce an indicator in its routine reporting system to capture the magnitude of pre-treatment LTFU. Fifth, all diagnosed patients should be notified in the TB treatment registers and included in the case finding report as well as in cohort analyses of treatment outcomes.[8,23] This will help in the regular monitoring of the situation across the country and enable appropriate action. Sixth, one of the challenges is tracing those patients who 'hop' from one facility to another for diagnosis and treatment. To ensure such patients are traced, the NTP needs to introduce a web-based, case-based, electronic recording and reporting system using a unique patient identifier, as recommended by the WHO.[24] Finally, TB needs to be declared a nationally notifiable disease in Pakistan, making it mandatory for every health care provider to notify the TB cases they diagnose and manage to the NTP.

In conclusion, we found that two thirds of TB patients diagnosed at PPM facilities in Lahore, Pakistan, were lost to follow-up before treatment initiation, and among those who started treatment, one fifth had an unfavourable outcome. This situation needs urgent attention.

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Contexte : Toutes les structures mixtes public-privé (PPM) prenant en charge les patients tuberculeux (TB) à Lahore, Pakistan, dans quatre modalités : PPM1 (médecins généralistes), PPM2 (organisations non gouvernementales), PPM3 (hôpitaux privés), PPM4 (autres).
Objectif : Evaluer les pertes de vue avant traitement (LTFU), définies comme des patients figurant dans le registre du laboratoire mais pas dans le registre de l'une quelconque des PPM pour leur traitement, parmi les patients ayant eu un diagnostic de TB à frottis positif de janvier à mars 2015 et un résultat défavorable du traitement parmi les patients enregistrés pour leur traitement, ainsi que les facteurs associés.
Schéma : Une étude rétrospective de cohorte par revue des dossiers de programme existants. La régression de Poisson a été utilisée pour identifier les facteurs associés aux résultats.
Résultats : Sur 2473 patients diagnostiqués, 1590 (64%) ont été perdus de vue avant le traitement. Ce résultat a été plus élevé parmi les hommes (68%) et les patients plus âgés (79%), et plus faible parmi les patients « hautement positifs » (frottis grade 2+ ou 3+, 5%) et dans le modèle de PPM1 (34%). Sur 883 patients ayant mis en route leur traitement, 165 (19%) ont eu un résultat défavorable (8% LTFU, 5% d'échecs du traitement, 3% décédés, 3% non évalués). Les patients déjà traités (34%) et les enfants (44%) ont eu des résultats plus mauvais.
Conclusion : Les LTFU avant le traitement ont été élevées de manière alarmante et demandent une attention urgente. Ceci inclut le développement et la mise en œuvre de mécanismes de recherche des patients grâce aux techniques d'information et de téléphonie mobile, et l'obligation de notification de la TB par le secteur privé.

Marco de referencia: Todos los establecimientos de la colaboración público privada (PPM, por public-private mix) que atienden pacientes con tuberculosis (TB) en la ciudad de Lahore, en Pakistán, según cuatro modelos, a saber: PPM1 (médicos generalistas), PPM2 (organizaciones no gubernamentales), PPM3 (hospitales privados) y PPM4 (otros).
Objetivo: Examinar las pérdidas durante el seguimiento antes del tratamiento (LTFU), definidas como los pacientes que aparecen en los registros de laboratorio, pero no se encuentran en los registros de tratamiento en ningún establecimiento PPM, de los pacientes con baciloscopia positiva del esputo, diagnosticados de enero a marzo del 2015, evaluar los desenlaces terapéuticos desfavorables en los pacientes registrados en tratamiento y determinar los factores asociados con estos desenlaces.
Método: Un estudio retrospectivo de cohortes con análisis de los registros del programa. Mediante una regresión de Poisson se definieron los factores asociados con los criterios de valoración.
Resultados: De los 2473 pacientes diagnosticados, 1590 se perdieron durante el seguimiento antes de comenzar el tratamiento (64%). Esta proporción fue más alta en los hombres (68%) y los ancianos (79%) y más baja en los casos con baciloscopia de alta positividad (53%, frotis calificado como 2+ o 3+) y en el modelo PPM1 (34%). De los 883 pacientes que iniciaron tratamiento, 165 (19%) presentaron desenlaces desfavorables (8% LTFU, 5% fracaso terapéutico, 3% fallecieron, 3% no se evaluaron). Los desenlaces más desfavorables se observaron en los pacientes con antecedente de tratamiento antituberculoso (3%) y en los niños (44%).
Conclusión: La proporción de LTFU durante el seguimiento antes de iniciar el tratamiento antituberculoso fue muy alarmante y exige una atención urgente. La respuesta puede consistir en la elaboración y aplicación de mecanismos de localización de los pacientes mediante las tecnologías de la información y los teléfonos celulares y la introducción de la notificación obligatoria de la TB en el sector privado.

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